

03500.017883

PATENT APPLICATION



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
HIROSHI AOTO ET AL.

Application No.: 10/769,765
Filed: February 3, 2004

For: DIELECTRIC FILM STRUCTURE,
PIEZOELECTRIC ACTUATOR:
USING DIELECTRIC ELEMENT
FILM STRUCTURE AND INK JET
HEAD

) : Examiner: Shih Wen Hsieh
): Group Art Unit: 2861
): Allowed: November 21, 2005
): Confirmation No.: 8910
):
): January 9, 2006

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

FOURTH INFORMATION DISCLOSURE STATEMENT

Sir:

In compliance with the duty of disclosure under 37 C.F.R. § 1.56 and in accordance with the practice under 37 C.F.R. §§ 1.97 and 1.98, the Examiner's attention is directed to the documents listed on the enclosed Form PTO-1449. Copies of the listed documents are enclosed.

The listed documents were cited in an Official Letter/Search Report dated November 30, 2005, issued by the Korean Patent Office in a corresponding foreign application. A copy of the Official Letter/Search Report is also enclosed.

Regarding the listed documents, Applicants wish to make the following remarks.

01/10/2006 HAL111 00000084 10769765

01 FC:1806

180.00 OP

Lin et al. discloses that for a PZT(001) film on an Si substrate through STO, the half-width value out of plane is 2.0°. However, it fails to show the arrangement for “in plane.”

KR 2002-86461 discloses that a ferroelectric film such as PbTiO₃ is used for a piezoelectric element used in an ink jet head. However, it fails to show the crystallization of the ferroelectric film.

Okawa et al. merely discloses that a PbTiO₃ film is formed on an MgO substrate and a quartz substrate in an orientation of (100), (001) and (111).

STATEMENT UNDER 37 C.F.R. §1.97(e)

Each item of information in this Information Disclosure Statement was first cited in any communication from a foreign Patent Office in a counterpart foreign application not more than three months prior to the filing date of this Statement.

FORMAL MATTERS

Enclosed herewith is a check for the required fee of \$180.00 to cover the fee for this Information Disclosure Statement under 37 C.F.R. § 1.97(d)(2). Please charge any additional fee and credit any overpayment to our Deposit Account No. 06-1205.

NOTE

Applicants note that the previous Information Disclosure Statement, which was entitled “Second Information Disclosure Statement” and filed on October 13, 2005, was actually the third Information Disclosure Statement filed in the subject application.

CONCLUSION

It is respectfully requested that the above information be considered by the Examiner and that a copy of the enclosed Form PTO-1449 be returned indicating that such information has been considered.

Applicants' undersigned attorney may be reached in our Washington D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our address given below.

Respectfully submitted,



Douglas W. Pinsky
Attorney for Applicants
Registration No. 46,994

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3800
Facsimile: (212) 218-2200
DWP/klm

LIST OF REFERENCES CITED BY APPLICANT
(Use several sheets if necessary)

Submitted: January 9, 2006

ATTY DOCKET NO.
03500.017883APPLICATION NO.
10/769,765

APPLICANT

HIROSHI AOTO ET AL.

FILING DATE

February 3, 2004

GROUP

2861

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	DOCUMENT NUMBER	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES/NO/ OR ABSTRACT
	2002-86461	11/2002	Korea			Abstract

OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

Lin et al., "Epitaxial growth of Pb (Zr_{0.2}Ti_{0.8}) O₃ on Si and its nanoscale piezoelectric properties," Applied Physics Letters, Vol. 78, No. 14, April 2, 2001, pp. 2034-2036.

Okawa et al., "Controlling the Crystal Orientations of Lead Titanate Thin Films," Japanese Journal of Applied Physics, Vol. 30, No. 9B, September, 1991, pp. 2145-2148.

EXAMINER

DATE CONSIDERED

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.